WICHITA POLICE & FIRE RETIREMENT SYSTEM

INVESTIGATION OF EXPERIENCE
January 1, 2004 through December 31, 2008

By:

Patrice A. Beckham, F.S.A., M.A.A.A.
Brent A. Banister, F.S.A., M.A.A.A.

Milliman

1120 S. 101st Street, Suite 400
Omaha, NE, 68124
USA
Tel +1 402 393.9400
Fax +1 402 393.1037
milliman.com

August 26, 2009

The Board of Trustees
Police and Fire Retirement System of Wichita, Kansas
City Hall, 12th Floor
Wichita, KS 67202

Dear Members of the Board:

It is a pleasure to submit this report of our investigation of the experience of the Wichita Police and Fire Retirement System (WPF) for the calendar years 2004 through 2008. The results of this investigation are the basis for recommended changes in actuarial assumptions for the actuarial valuation to be performed as of December 31, 2009.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the upcoming valuation. Several of our recommendations represent changes from the prior methods or assumptions and are designed to better anticipate the emerging experience of the System.

We have provided financial information showing the estimated impact of the recommended assumptions, if they had been reflected in the December 31, 2008 actuarial valuation. We believe the recommended assumptions provide a reasonable estimate of anticipated experience affecting WPF. Nevertheless, the emerging costs will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions,

- Future changes in the actuarial assumptions,

- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status), and

- Changes in the plan provisions or accounting standards.

Due to the scope of this assignment, we did not perform an analysis of the potential range of such measurements.

In preparing this report, we relied without audit on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination, after discussion with staff and certain adjustments, we have found the data to be reasonably consistent and comparable with data used for other purposes, unless otherwise noted. Since the experience study results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our determinations might need to be revised.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations).

Milliman has been engaged by WPF as an independent actuary. Any distribution of this report must be in its entirety, including this cover letter, unless prior written consent is obtained from Milliman. Milliman's work product was prepared exclusively for WPF for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning WPF's operations, and uses WPF's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

We would like to acknowledge the help in the preparation of the data for this investigation given by the WPF staff. We look forward to our discussions and the opportunity to respond to your questions and comments at your next meeting.

I, Patrice A. Beckham, F.S.A. am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Brent A. Banister, F.S.A. am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.
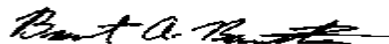
We herewith submit the following report and look forward to discussing it with you.

Respectfully submitted,

MILLIMAN, INC.

Patrice A. Beckham, F.S.A.
Consulting Actuary

Brent A. Banister, F.S.A.
Consulting Actuary

WICHITA POLICE & FIRE RETIREMENT SYSTEM
INVESTIGATION OF EXPERIENCE (2004–2008)

Table of Contents

WICHITA POLICE & FIRE RETIREMENT SYSTEM
INVESTIGATION OF EXPERIENCE (2004 – 2008)

Section 1: Board Summary

Overview

Any actuarial valuation is based on certain underlying assumptions. Determining the actuarial contribution rate is highly dependent on these assumptions that the actuary uses to project the future benefit payments and then to discount the value of future benefits to determine the present values. Thus, the assumptions are critical in assisting the system in adequately pre-funding for the benefits prior to retirement.

To assess the reasonableness of the assumptions used in the valuation, they should be studied regularly. This process is called an investigation of experience (or experience study).

Summary of Results

This section describes the key findings of this investigation of the experience of the Wichita Police and Fire Retirement System for the period January 1, 2004 through December 31, 2008. We are recommending several changes to the assumptions. We will refer to our recommended assumptions as the "proposed" assumptions.

The following table shows a summary of the results of the study.

Assumption	Recommendation
Inflation	Decrease from 4.0% to 3.5%
Investment Return	No Change
Wage Growth	Decrease from 4.5% to 4.0%
Mortality	No Change
Retirement	Modify to reflect experience
Disability	No Change
Termination	Modify to reflect experience
Probability of Refund	No Change
Merit Salary Scale	Increase
Index TV Benefit	Decrease from 4.5% to 4.0%

If adopted, the new assumptions would result in a small decrease in the unfunded actuarial liability and the actuarial contribution rate. This is discussed further in the Financial Impact section at the end of the Executive Summary.

Economic Assumptions

Section 2 discusses the economic assumptions: price inflation, general wage growth (includes price inflation and productivity) and the investment return assumption. We have recommended that the Board reduce the inflation assumption from 4.0% to 3.5%. Since price inflation is a component of wage growth, we also recommended that the Board adopt a 4.0% general wage growth assumption (price inflation plus productivity). We are not recommending a change to the investment return assumption.

Mortality

Overall, the actual number of deaths from healthy male retirees was higher than expected (A/E ratio of 123%). However, in the last experience study, the A/E ratio using the current assumption was 88%. When this experience is aggregated, the A/E ratio for the entire 10 year period is 107%. Although the ratio exceeds 100%, the size of the group is relatively small and therefore, volatility in the results is to be expected.

Deaths: Healthy Male Retirees			
	Actual	**Expected**	**Actual/Expected**
1998-2003	44	50	88%
2004-2008	70	57	123%
Total	114	107	107%

We are not recommending any change to this assumption.

Retirement

For Plans A/B, the actual number of retirements was less than expected based on the assumptions (A/E ratio of 20% for Police and 16% for Fire). The significantly low A/E ratio is the result of members with over 30 years of service not retiring during the period, but being included in the expected count each year. We are recommending the retirement rates be lowered and extended to 35 years of service. There are very few active members in Plans A/B so any change to the retirement assumption won't have a significant impact on the valuation results.

For Plan C, the actual number of retirements was less than the assumptions predicted (9 versus 41 for an A/E ratio of 22%). There isn't a lot of exposure (members eligible to retire) for Plan C, so volatility in the results is to be expected. The following graphs show the results for Plan C members eligible to retire.

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Police - Plan C
Retirement Rates

	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	4	22	11
Actual/Expected		18%	36%

Milliman

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Fire - Plan C
Retirement Rates
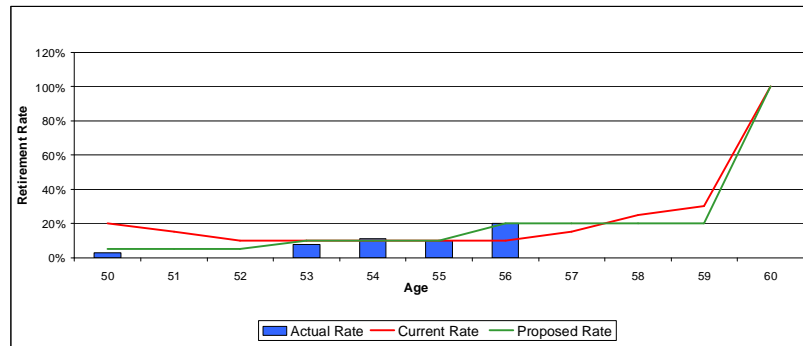
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	5	19	11
Actual/Expected		26%	45%

We are recommending the rates of retirement be lowered at certain ages and increased at others. Given that no experience has occurred under Plan C for retirements under the "30 and out" provision, we prefer to be conservative in modifying retirement rates for Plan C.

Disability

Over the study period, there were 14 disability retirements compared to 34 expected. Given the small size of the group, coupled with the low rates of disability, volatility is expected. We are not recommending a change to this assumption.

Termination

Overall, the actual number of terminations was higher than the number anticipated by the assumptions for Police and slightly less than anticipated overall for Fire.   We are recommending some revisions to the rates at certain ages as shown in the following graphs.

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Police
Withdrawal Rates
Ultimate

	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	62	33	43
Actual/Expected		188%	144%

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Fire
Withdrawal Rates
Ultimate
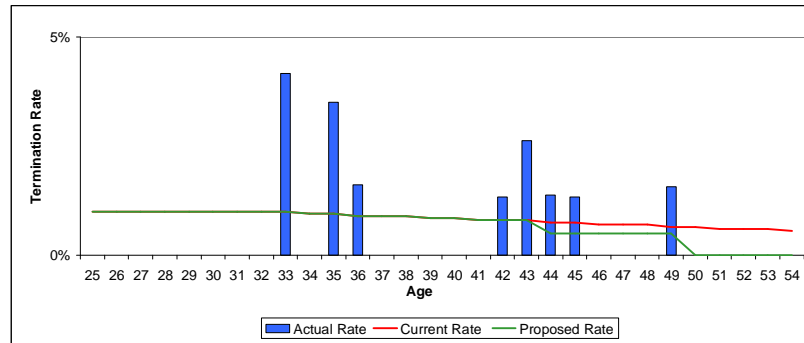
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	11	11	9
Actual/Expected		100%	122%

Probability of Refund upon Vested Termination

The actual number of refunds for vested members at termination was more than the assumptions predicted. We are recommending no change to this assumption.

Probability of Refund		
Actual	**Expected**	**Act/Exp**
14	11	127%

Individual Salary Increases due to Promotion and Longevity (Merit)

Section 9 discusses the individual salary increases due to promotion and longevity – the merit component of salaries. Overall, the results of our salary study show increases higher than would be expected given the general economy during the study period. Specifically, general wage growth was around 4.0% while the assumed rate was 4.5%. Therefore, we would have expected to see actual wage increases lower than expected. Once the dataset was adjusted for consistency, actual salary increases were close to those assumed. Based on discussions with staff, we believe the merit scale needs to be adjusted to reflect longevity pay and promotion. This change, combined with the general wage assumption of 4.0%, will lower the total salary scale for years 1-14 and increase the salary scale for years 15 and more.

Financial Impact of Recommended Assumptions

Overall, the estimated financial impact of the proposed changes in assumptions is somewhat small, as compared to the total liabilities. The following exhibit is designed to give the reader an idea of how the proposed changes would affect WPF as a whole. Note that the proposed changes decrease the expected annual cost of benefits (Normal Cost %) and decrease the Unfunded Actuarial Liability.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

4

The financial impact was evaluated by performing additional valuations with December 31, 2008 special valuation data and reflecting the proposed assumption changes. This allows us to assess the relative financial impact of the various proposed changes. The actual impact on the December 31, 2009 valuation could vary. Note that the relative impact of the various assumption changes by component is somewhat dependent on the order in which they are evaluated.

	Normal Cost %	Actuarial Liability	Actuarial Contribution Rate
12/31/08 Valuation	25.1%	$497	27.8%
Assumption Changes			
Rates of Retirement	(0.8%)	(9)	(1.00)
Termination Rates	(0.3)	0	(0.30)
Merit Salary	0.7	5	0.50
Index TV Benefits	(0.2)	0	(0.20)
Subtotal	(0.6)	(4)	(1.00)
12/31/08 Valuation with Changes	24.5%	493	26.8%

Section 2: **Actuarial Methods**

The systematic financing of a pension plan requires that contributions be made in an orderly fashion while a member is actively employed, so that the accumulation of these contributions, together with investment earnings should be sufficient to provide promised benefits and cover administration expenses. The actuarial valuation is the process used to determine when money should be contributed; i.e., as part of the budgeting process.

The actuarial valuation will not impact the amount of benefits paid or the actual cost of those benefits. In the long run, actuaries cannot change the costs of the pension plan, regardless of the funding method used or the assumptions selected. However, actuaries will influence the incidence of costs by their choice of methods and assumptions.

Actuarial Cost Method

The valuation or determination of the present value of all future benefits to be paid by the Plan reflects the assumptions that best seem to describe anticipated future experience. The choice of a funding method does not impact the determination of the present value of future benefits. The funding method, determines only the incidence of cost. In other words, the purpose of the funding method is to allocate the present value of future benefits determination into annual costs. In order to do this allocation, it is necessary for the funding method to "break down" the present value of future benefits into two components: (1) that which is attributable to the past (2) and that which is attributable to the future. The excess of that portion attributable to the past over the plan assets is then amortized over a period of years. Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial liability". The portion of the present value of future benefits allocated to the future is commonly known as "the present value of future normal costs", with the specific piece of it allocated to the current year being called the "normal cost". The difference between the plan assets and actuarial liability is called the "unfunded actuarial liability".

Two key points should be noted. First, there is no single "correct" funding method. Second, the allocation of the present value of future benefits and hence cost to the past for amortization and to the future for annual normal cost payments is not necessarily in a one-to-one relationship with service credits earned in the past and future service credits to be earned.

There are various actuarial cost methods, each of which has different characteristics, advantages and disadvantages. The System currently uses the entry age normal actuarial cost method. The rationale of the entry age normal (EAN) funding method is that the cost of each member's benefit is determined to be a level percentage of his salary from date of hire to the end of his employment with the employer. This level percentage multiplied by the member's annual salary is referred to as the normal cost and is that portion of the total cost of the employee's benefit which is allocated to the current year. The portion of the present value of future benefits allocated to the future is determined by multiplying this percentage times the present

value of the member's assumed earnings for all future years including the current year. The entry age normal actuarial liability is then developed by subtracting from the present value of future benefits that portion of costs allocated to the future. To determine the unfunded actuarial liability, the value of plan assets is subtracted from the entry age normal actuarial liability. The current year's cost to amortize the unfunded actuarial liability is developed by applying an amortization factor.

It is to be expected that future events will not occur exactly as predicted by the actuarial assumptions in each year. Actuarial gains/losses from experience under this actuarial cost method can be directly calculated and are reflected as a decrease/increase in the unfunded actuarial liability. Consequently, the gain/loss results in a decrease/increase in the amortization payment, and therefore, the contribution rate.

The Entry Age Normal actuarial cost method develops a normal cost rate which tends to be stable and less volatile than other methods. It is used by about 85% of all public sector plans. **We recommend that WPF continue using the Entry Age Normal method.**

Actuarial Value of Assets

In preparing an actuarial valuation, the actuary must assign a value to the assets of the fund. An adjusted market value, referred to as the actuarial value of assets, is often used to smooth out the volatility in the market value. This is because most plan sponsors would rather have annual costs remain relatively smooth, as percentage of payroll, rather than a cost pattern that is extremely volatile.

The actuary does not have complete freedom in assigning this value. For example, GASB requirements and basic actuarial principles promulgated by the American Academy of Actuaries require any methodology used in assessing the value of assets to:

- Take into account fair market value;

- Produce a result which is not consistently above or below the fair market value;

- Fall within a reasonable range around the market value;

- Recognize differences between the actuarial and market values of assets within a reasonable period of time.

These rules or principles prevent the asset valuation methodology from being used to distort annual funding patterns. No matter what asset valuation method is used, it is important to note that, like a funding method or actuarial assumptions, the asset valuation method does not affect the cost of the plan; it only impacts the incidence of cost.

WPF values assets, for actuarial valuation purposes, based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the fund from year to year. This philosophy is consistent with the long-term nature of a retirement system. Under this method, the actuarial value of the assets is the expected value of assets plus 25% of the difference between market value and expected value. The

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

7

expected value is last year's actuarial value of assets and subsequent cash flows into and out of the fund accumulated with interest at the actuarial assumed rate of return. This methodology is equivalent to using a weighted average of 75% of the expected value and 25% of actual market value. This methodology was first adopted by the Board in conjunction with the December 31, 2002 valuation.

There are other smoothing methods that would also be acceptable. The one limitation of the current method is it is more difficult to explain in that each year's gain or loss is not fully recognized at the end of the four year period. However, the method provides an appropriate level of smoothing and, in our opinion, meets actuarial standards. **We recommend no change to the asset valuation method at this time.**

Amortization of UAL

As described above, actuarial liabilities are the portion of the actuarial present value of future benefits that are not included in future normal costs. Thus it represents the liability that, in theory, should have been funded through historical normal costs. Unfunded actuarial liabilities (UAL) exist when actuarial liabilities exceed plan assets. These deficiencies can result from (i) plan improvements that have not been completely paid for, (ii) experience not being as favorable as expected, (iii) assumption changes that increase liabilities or (iv) contributions less than the actuarial rate. If the actuarial value of assets (AVA) exceeds the actuarial liability (AL), "surplus" exists.

There are a variety of different methods that can be used to amortize the UAL/surplus. Each results in a different payment stream and, therefore, has cost implications. For each methodology, there are three characteristics:

- The period over which the UAL is amortized,

- The rate at which the amortization payment increases, and

- The number of components of UAL with separate amortization bases.

Statement No. 25 of the Governmental Accounting Standards Board (GASB) sets parameters for all of these characteristics (this standard is currently under review by GASB). The maximum period currently permitted is 30 years. The annual amortization amount can be a level dollar amount or a level percentage of payroll. The UAL may be amortized as one amount or components may be amortized separately.

Using a level dollar amortization to pay off their unfunded actuarial liability is similar to the method in which a home owner pays off a mortgage. The liability, once calculated, is financed by a constant fixed dollar amount, based on a predetermined number of years, until the liability is extinguished. This results in the liability steadily decreasing while the payments, though remaining level in dollar terms, in all probability decrease as a percentage of payroll. (Even if a plan sponsor's population is not growing or even slightly diminishing, inflationary increases will usually be sufficient to increase the aggregate payroll).

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Milliman

8

The rationale behind the level percentage of payroll amortization method is that since normal costs are calculated to be a constant percentage of pay, unfunded actuarial liabilities should be paid off in the same manner. When this method of amortizing the unfunded actuarial liability is adopted, the initial amortization payments are lower than they would be under a level dollar amortization payment method, but the payments increase at a fixed rate so that ultimately the annual payment far exceeds the level dollar payment. The expectation is that total payroll will increase as rapidly as the payment so the amortization payments will remain constant, as a percentage of payroll. In the initial years, the level percentage of payroll amortization payment is often less than the interest accruing on the unfunded actuarial liability meaning that, even if there are no experience losses, the amount unfunded actuarial liability will increase. If the plan sponsor is paying off the unfunded actuarial liability over a long period, such as 30 years, it is possible that the unfunded actuarial liability will grow for nearly 20 years, gradually reduce and be completely paid off by the 30th year. The increasing unfunded actuarial liability may be troubling to certain interested parties, but should not be worrisome unless the remaining UAL is actually increasing as a percentage of total covered payroll.

The amortization period can be either fixed or open. If it is a fixed or closed amortization period, the period declines by one in each future year. Alternatively, if the amortization period is an open or rolling period, the amortization period does not decline but is reset and remains the same in each future year.

Use of the level percentage of payroll amortization has its advantages and disadvantages. From a budgetary standpoint, it makes sense to develop UAL contribution rates that are level as a percentage of payroll and are consistent with the development of the normal cost. However, this approach clearly results in slower funding of the UAL.

Under the Kansas statutes, any UAL/(surplus) for WPF is amortized as a level percent of payroll over a rolling 20-year period as a minimum. For many years, WPF had surplus assets so the 20-year open period was a more conservative approach than a 20-year closed period. However, as of December 31, 2008, the system had an unfunded actuarial liability so this method delays paying off the liability. Given the magnitude of the deferred investment losses, it may be necessary to maintain the open amortization period for a number of years in order to keep the contribution rate at a more affordable level. **However, we suggest we have further discussions about the long-term implications of an open amortization period and study possible alternatives for consideration in the next few years.**

☐ Milliman

9

Section 3:   Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one "right answer", the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. The following table shows our recommendations.

This section will discuss the economic assumptions. In brief, they are as follows (changes are shown in bold):

Economic Assumption	Current Assumption (Annual Rate)	Proposed (Annual Rate)
Consumer Price Inflation	4.00%	**3.50%**
Investment Return[1]	7.75%	7.75%
Wage Growth (includes inflation and productivity)	4.50%	**4.00%**
Real Wage Inflation (wage growth less price inflation)	0.50%	0.50%
Payroll Growth	4.50%	**4.00%**

[1] Net of investment and administrative expenses.

Milliman

Use in the Valuation

When we refer to inflation in this report, we are referring to price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage increases and the payroll increase assumption.

The long-term relationship between inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand expected investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower demanded expected investment returns, at least in the long run.

The current assumption for inflation is 4.0% per year.

Historical Perspective

The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics. The data for periods ending in December of each year is documented in Exhibit 1 at the end of this section.

Although economic activities in general, and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and-long term trends are a factor to be considered in developing the inflation assumption.

There are numerous ways to review historical data, with significantly differing results. The tables below show the compounded annual inflation rate for various 10-year periods, and for longer periods ended in December 2008.

Time Period	CPI Increase
1998-2008	2.5%
1988-1998	3.1%
1978-1988	5.9%
1968-1978	6.7%
1958-1968	2.1%
1998-2008	2.5%
1988-2008	2.8%
1978-2008	3.8%
1968-2008	4.5%
1958-2008	4.0%
Prior 75 Years	
1933-2008	3.8%

Milliman

Historical Perspective (Continued)

The following graph shows historical national CPI increases by year and on 10- and 30-year rolling averages. Note that the actual CPI increase has been less than 4.0% for about the last 20 years.

CPI-U History
(Annual Increases)
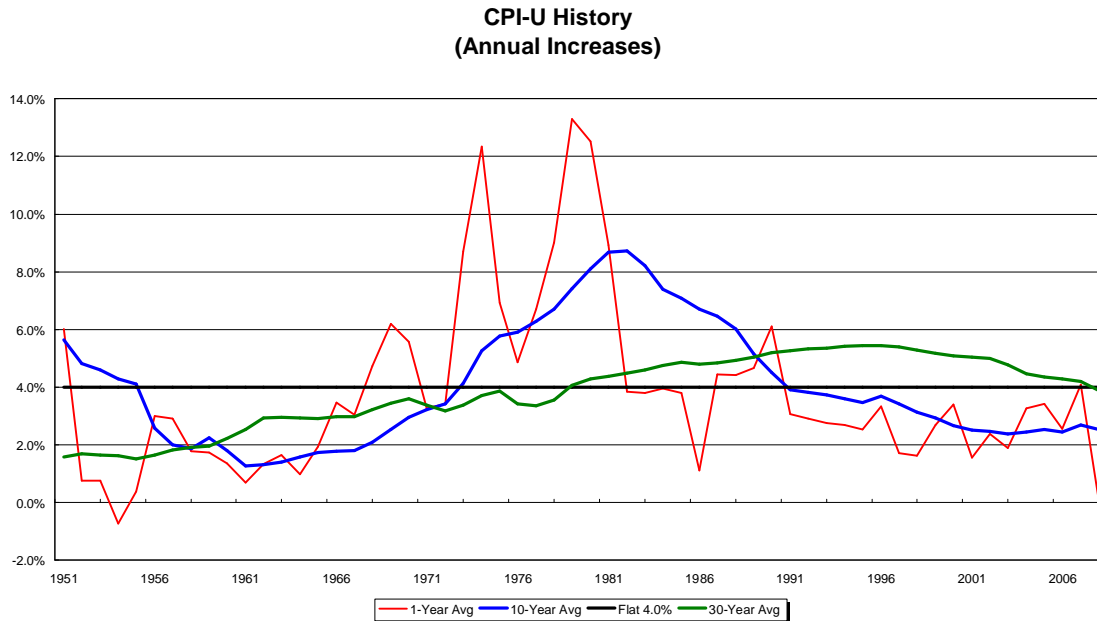
Peer System Comparison

According to the *Public Fund Survey* conducted by NASRA, the National Association of State Retirement Administrators, (a survey of approximately 100 large public systems), the average inflation assumption is 3.50%.

Looking at peer systems in other major cities in the Midwest, the current inflation assumption is at the high end of the range.

Milliman
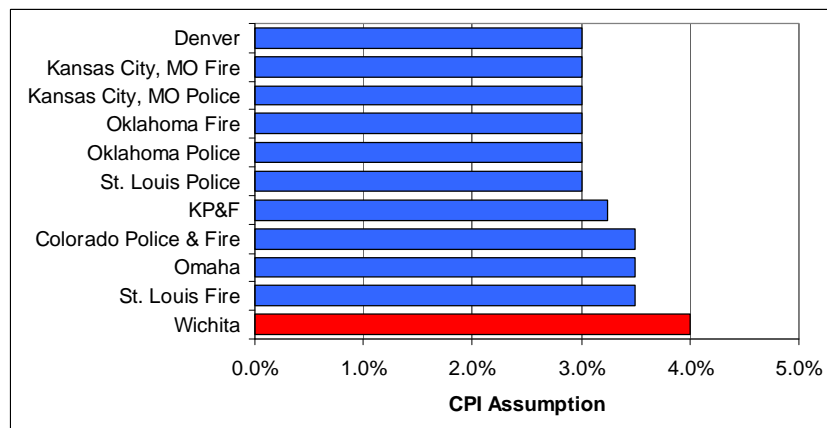
Forecasts of Inflation

Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. However, given the turmoil in the financial markets that was occurring in December 2008, we looked at the December 2007 rates. Those prices suggested investors were expecting inflation to be about 2.3% over the next 10 years.

Many economists have been forecasting inflation lower than the rate used in actuarial valuations. Economists are generally considering shorter time periods (10 years or less) than may be appropriate for a pension valuation. To find an economic forecast with a time frame long enough to suit our purposes, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the most recent published report, 2008 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.80%. The reasonable range was stated as 1.80% to 3.80%.

Best-Estimate Range and Recommendation

The consumer price inflation assumption is used to determine both the investment return assumption and the wage growth assumption. We believe that the current assumption of 4.0% per year is somewhat on the high side. Although there is considerable discussion about high inflation in the short term, our measurements are performed over a 40-50 year time horizon and we believe it is reasonable to lower the inflation assumption from 4.0% to 3.5%. This also brings the assumption more in line with the assumption used by other similar systems.

Consumer Price Inflation	
Current Assumption	4.0%
Best Estimate Range	2.50% - 4.50%
Recommended Assumption	Proposed : 3.50%

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

13

WICHITA POLICE & FIRE RETIREMENT SYSTEM
INVESTIGATION OF EXPERIENCE (2004–2008)

Exhibit 2-1

US City Average, All Urban Consumers (CPI-U) - December

December of:	Index	Increase	December of:	Index	Increase
1928	17.1				
1929	17.2	0.6%	1969	37.7	6.2%
1930	16.1	-6.4	1970	39.8	5.6
1931	14.6	-9.3	1971	41.1	3.3
1932	13.1	-10.3	1972	42.5	3.4
1933	13.2	0.8	1973	46.2	8.7
1934	13.4	1.5	1974	51.9	12.3
1935	13.8	3.0	1975	55.5	6.9
1936	14.0	1.4	1976	58.2	4.9
1937	14.4	2.9	1977	62.1	6.7
1938	14.0	-2.8	1978	67.7	9.0
1939	14.0	0.0	1979	76.7	13.3
1940	14.1	0.7	1980	86.3	12.5
1941	15.5	9.9	1981	94.0	8.9
1942	16.9	9.0	1982	97.6	3.8
1943	17.4	3.0	1983	101.3	3.8
1944	17.8	2.3	1984	105.3	3.9
1945	18.2	2.2	1985	109.3	3.8
1946	21.5	18.1	1986	110.5	1.1
1947	23.4	8.8	1987	115.4	4.4
1948	24.1	3.0	1988	120.5	4.4
1949	23.6	-2.1	1989	126.1	4.6
1950	25.0	5.9	1990	133.8	6.1
1951	26.5	6.0	1991	137.9	3.1
1952	26.7	0.8	1992	141.9	2.9
1953	26.9	0.7	1993	145.8	2.7
1954	26.7	-0.7	1994	149.7	2.7
1955	26.8	0.4	1995	153.5	2.5
1956	27.6	3.0	1996	158.6	3.3
1957	28.4	2.9	1997	161.3	1.7
1958	28.9	1.8	1998	163.9	1.6
1959	29.4	1.7	1999	168.3	2.7
1960	29.8	1.4	2000	174.0	3.4
1961	30.0	0.7	2001	176.7	1.6
1962	30.4	1.3	2002	180.9	2.4
1963	30.9	1.6	2003	184.3	1.9
1964	31.2	1.0	2004	190.3	3.3
1965	31.8	1.9	2005	196.8	3.4
1966	32.9	3.5	2006	201.8	2.5
1967	33.9	3.0	2007	210.0	4.1
1968	35.5	4.7	2008	210.2	0.1

Use in the Valuation

The investment return assumption is one of the primary determinants in the calculation of the expected cost of the System's benefits, providing a discount of the future benefit payments that reflects the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, and contribution rates. The current investment return assumption is 7.75% per year, net of investment related and administrative expenses.

Method to Determine Best-Estimate Range for Investment Return

We have determined the best-estimate range for the investment return assumption based upon a model developed by Milliman's investment practice. As input to this model, we have used Milliman's assumptions for capital markets and the target asset allocation adopted by the Board. The target asset allocation is summarized in the following chart:

Asset Class	Target Allocation
Domestic Equity	
Large Cap	25.00%
Small Cap	9.40
Index	12.60
Domestic Fixed Income	
Active Core	14.00
Active Core Plus	14.00
International Equity	
Active Core	8.00
Active Core Plus	12.00
Real Estate	
Core	3.00
Value Added	2.00
Total	100.00%

This model is used to provide the range of assumptions appropriate for compliance with Actuarial Standard of Practice No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations." The Standard defines the Best-Estimate Range as "the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall". By assuming the portfolio is re-balanced annually and that annual returns are lognormally distributed and independent from year-to-year, we can develop expected percentiles for the long-term distribution of annualized returns.

Using properties of the lognormal distribution, we calculate the 25th and 75th percentiles of the long-term total return distribution. This becomes our best-estimate range because 50% of the outcomes are expected to fall within this range and it is centered about the mean.

Method to Determine Best-Estimate Range for Investment Return (Continued)

The capital market assumptions were combined with the target asset allocation policy to generate expected real rates of returns (total return less assumed inflation) which were then added to the recommended inflation assumption of 3.5%. The rate of return is subject to significant year-to-year volatility as measured by the standard deviation. Volatility over time will lower the mean rate of return, but diversification by asset class will reduce the volatility and narrow the range of expected total returns for the entire portfolio. The results are summarized as follows:

Expected Investment Return with 3.50% Inflation
(before reflecting investment and administrative expenses)

Horizon In Years	Percentile Results for Nominal Rate of Return				
	5th	25th	50th	75th	95th
1	-10.1%	0.7%	8.9%	17.8%	31.9%
5	0.0%	5.2%	8.9%	12.8%	18.7%
10	2.5%	6.2%	8.9%	11.7%	15.7%
20	4.3%	7.0%	8.9%	10.8%	13.7%
50	6.0%	**7.7%**	**8.9%**	**10.1%**	11.9%

The geometric mean return is 8.9%, but due to the volatility associated with the asset allocation, the range of probable outcomes is quite large. For example, in the first year there is a 5% chance the rate of return will be less than -10.1% and a 5% chance it will be greater than 31.9%. As the time horizon lengthens, the range of the cumulative average results narrows. Note that these are gross returns, prior to adjusting for investment and administrative expenses.

Over a 50-year time horizon, we estimate there is a 25% chance the nominal rate of return will be less than 7.7% and a 25% chance the return will be greater than 10.1% (bold numbers on the bottom line in the table above). Therefore, we can say the return is just as likely to be within the range from 7.7% to 10.1% as not.

We also used the model with capital market assumptions from Callan Associates Inc. and the 3.50% inflation assumption. This produced a median return of 9.1% compared to our result of 8.9%.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

16

Investment and Administrative Expenses

The investment return used for the valuation is assumed to be net of all investment and administrative expenses. The following tables show the ratio of investment and administrative expenses to the fair market value of assets over the last nine fiscal years ending December 31. The expense ratios are calculated as the total expense divided by the ending asset balance at fair market value.

($M)

Year	Market Assets*	Investment Expense	Admin. Expense	Expense Ratio
2000	$377	$1.7	$0.2	0.50%
2001	351	1.5	0.2	0.49
2002	301	1.5	0.3	0.60
2003	357	1.5	0.3	0.50
2004	383	1.6	0.3	0.50
2005	407	2.0	0.3	0.56
2006	461	2.0	0.4	0.52
2007	504	2.5	0.4	0.58
2008	356	1.8	0.5	0.65

* At December 31

During this period the ratio of investment and administrative expenses to market assets averaged about 0.55%. We recommend the annual expense assumption (both investment and administrative) be set to 0.55% of assets.

This assumption does not have a direct impact on the actuarial valuation results, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, if the investment return assumption is set equal to 7.75%, then the System would need to earn a gross return on its assets of 8.30% in order to net the 7.75% for funding purposes.

Best-Estimate Range and Recommendations

Based on the ASOP No. 27 guidelines, we conclude that the reasonable range is the expected real rates of return between the 25th and 75th percentile projected out 50 years, plus the assumed inflation rate, less investment-related and administrative expenses.

Based upon our model and the current inflation assumption, we have the following results:

Components of Return	Percentile Results		
	25th	50th	75th
Real Rate of Return	4.20%	5.40%	6.60%
Assumed Inflation	3.50%	3.50%	3.50%
Expenses	(0.55%)	(0.55%)	(0.55%)
Net Investment Return	**7.15%**	**8.35%**	**9.55%**

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

17

Based upon this model, there is a 60% chance that the net return will be 7.75% or more over a 50-year period. In other words, a net return of 7.75% is at the 40th percentile for a 50-year investment horizon.

Generally we like to allow some room for conservatism when recommending the investment return assumption to provide a buffer against future adverse experience. Since the expected return of 8.35% exceeds the assumed investment return of 7.75%, there is currently about 0.60% as a buffer. Therefore, we believe the current assumption is reasonable.

Peer System Comparison

According to the *Public Fund Survey*, the average investment return assumption for the systems who participate is 8.0%

Looking at peer systems in the Midwest, the current investment return assumption is also in the mainstream.
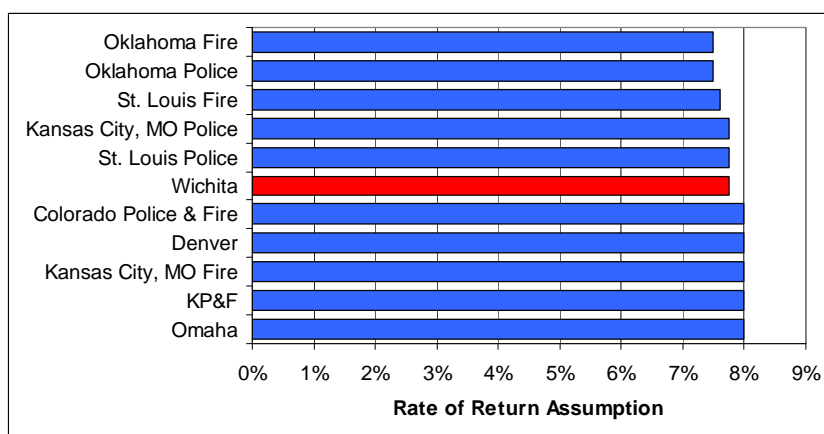
Other Factors for Board consideration

Since economic assumptions are subjective in nature, it is our recommendation that the Board be fully comfortable with the implications of the economic assumptions, particularly with the investment return assumption. There is an "actuarial or liability risk" associated with the economic assumptions similar to the investment risk associated with a given portfolio mix.

Actuarial assumptions are used to measure and budget future costs. Changing assumptions will not change the actual cost of future benefits, but may impact the timing of contributions. Aggressive assumptions anticipate good future experience ahead of time and factor it into budget estimates. Conservative assumptions on the other hand tend to recognize good experience only after it happens.

The choice of assumptions depends on a system's risk tolerance. The final determination on whether or not a set of assumptions was either conservative or aggressive will only be born out by future experience. We believe the current economic assumptions are neither aggressive nor conservative.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

18

Conclusion

As discussed in the inflation section, we are recommending the inflation assumption be lowered to 3.50%. This means the real rate of return assumption is being increased 0.50%. However, based on portfolio analysis and the recommended inflation assumption, we believe the 7.75% assumption is reasonable and has some buffer for adverse experience. Nonetheless, the expected returns for the portfolio will still have considerable volatility.

Investment Return (net of investment and administrative expenses)	
Current Assumption	7.75%
Best Estimate Range*	7.15% - 9.55%
Recommended Assumption	Proposed : 7.75%*

* *Based on a 3.5% inflation assumption,*

⬛ Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

19

Use in the Valuation

Estimates of future salaries are based on two types of assumptions: 1) general wage increase and 2) merit increase. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions.

The current assumption for wage growth is for 0.50% above the inflation assumption, or 4.50%.

Historical Perspective

We have used statistics from the Social Security Administration on the National Average Wage back to 1951.

There are numerous ways to review this data. For consistency with our observations of other indices, the tables below show the compounded annual rates of wage growth for various 10-year periods, and for longer periods ended in 2007 (2008 wage data is not yet available). The excess of wage growth over price inflation represents "productivity" or the increase in the standard of living, (also called the real wage inflation rate).

Time Period	Wage Growth	CPI Increase	Real Wage Inflation
1998-2007	4.0%	2.5%	1.5%
1988-1997	4.1%	3.1%	1.0%
1978-1987	6.5%	5.9%	0.6%
1968-1977	6.5%	6.7%	-0.2%
1958-1967	3.6%	2.1%	1.5%
1998-2007	4.0%	2.5%	1.5%
1988-2007	4.0%	2.8%	1.2%
1978-2007	4.8%	3.8%	1.0%
1968-2007	5.3%	4.5%	0.8%
1958-2007	4.9%	4.0%	0.9%
Prior 57 Years			
1951-2007	4.8%	3.7%	0.9%

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Milliman

20

Peer System Comparison

The *Public Fund Survey* does not report the average wage growth assumption and many valuation reports do not disclose this information so it is difficult to provide comparative information. Based on our experience with other systems, we believe the average for other systems would be slightly below the current 4.50%.

Forecasts of Future Wages

Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2008 Trustees Report, the long-term annual increase in the National Average Wage is estimated to be 1.1% higher than the Social Security intermediate inflation assumption of 2.8% per year. The range of the assumed real wage growth in the 2008 Trustees Report was from 0.6% to 1.6% per year.

Reasonable Range and Recommendation

We believe that a range between 0.50% and 1.50% is reasonable for the actuarial valuation. We recommend that the long-term assumed real wage inflation remain at 0.50% per year.

Real Wage Inflation Rate	
Current Assumption	0.50%
Best Estimate Range	0.50% - 1.50%
Recommended Assumption	0.50%

The wage growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate. If the real wage inflation assumption is 0.50% and the price inflation assumption is 3.50%, this would result in a total wage growth assumption of 4.00%.

Payroll Increase Assumption

In addition to setting salary assumptions for individual members, the aggregate payroll is expected to increase, without accounting for the possibility of an increase in membership (our current and recommended assumption is that no growth in membership is assumed).

The current payroll increase assumption is equal to the general wage growth assumption of 4.50%. It is our general recommendation to continue to set these two assumptions to be equal. Therefore, we recommend that the payroll increase assumption be set to 4.00%.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

21

Section 4:   Mortality

One of the most important demographic assumptions is mortality because this assumption predicts when retirement payments will stop. The life expectancies of current and future retirees are predicated on the assumed rates of mortality at each age. It is commonly known that rates of mortality have been declining throughout this century, which means people, in general, are living longer.

Because of potential differences in mortality, different assumptions may be employed for healthy retirees, disabled retirees and active members. Therefore, experience for each group is typically studied separately.

Results

Healthy Retirees

In the last experience study, the retiree mortality assumption was changed to the RP-2000 Healthy Annuitant Mortality Table (generational).

The observed A/E Ratios for healthy retirees are shown in the following chart. The size of the group is relatively small, but can still provide insight into whether or not the current assumption is reasonable.

Healthy Retirees	2004-2008 Observations		A/E Ratio
	Actual	**Expected**	
Male	70	57	123%
Female	1	1	100%
Totals	71	60	118%

In examining the results of an experience study, if the A/E Ratio is greater than 100% the assumptions have predicted fewer deaths than actually occurred and, therefore, have built in some "margin" for future mortality improvements. This is generally considered a prudent approach given past mortality experience. The RP-2000 Table provides a margin for future mortality improvements using a different approach. It projects future mortality improvements on a "generational" basis, i.e. mortality rates are set by the year in which a member reaches a particular age. By its "generational" approach, it directly reflects expected improvements in mortality for all members, i.e. greater mortality improvements are anticipated for younger members, which is more likely to occur. With the use of the RP-2000 Table, a "margin" (A/E ratio above 100%) is no longer required as the expected mortality improvements are built into the future mortality rates. As a result, we expect to find A/E ratios around 100%.

The A/E ratio of 118% indicates that there were more actual deaths than expected based on current assumptions. This experience indicates that the current table is understating mortality (and thereby overstating life

Milliman

expectancy), which is conservative.

There is insufficient data for any analysis of female mortality. Given the relatively small number of exposure at each age for males, the results are not totally credible on their own, but they provide general insight into the appropriateness of the table.

In order to have additional data for our analysis, we aggregated the current and prior experience study results for healthy, male retirees. Although the A/E Ratio in this study is 118%, the A/E Ratio in the last study, using the same table, was 88% illustrating the volatility that can occur in small groups. When the aggregate experience over ten years is considered, the A/E ratio is 107%. The results are shown below:

	Actual	Expected	A/E Ratio
1998 – 2003	44	50	88%
2003 – 2008	70	57	123%
Total	114	107	107%

The A/E ratio for the ten-year period indicates the assumption is a reasonable fit for the observed experience. **We recommend keeping the current healthy retiree mortality assumption, the RP-2000 Healthy Annuitant Table for males and females with generational mortality improvements using Scale AA.**

Beneficiaries

The mortality of beneficiaries applies to the survivors of members who have elected a joint and survivor option. There is never complete data on the mortality experience of beneficiaries prior to the death of the member because there is no requirement that the death be reported to the System. In addition, the data is small. **Therefore, we recommend the standard convention be followed and the mortality basis be set for beneficiaries to the same basis as is used for retired members.**

Disabled Members

The valuation assumes that disabled members, in general, will not live as long as retired members who met the regular service retirement eligibility. There is an insufficient number of disabled retirees to provide statistically reliable results. When the retiree mortality was changed in the last study, the RP-2000 Disabled Tables for males and females were recommended to be consistent with the table used for Healthy Retirees. Although there were 25 deaths compared to 13 expected for a resulting A/E ratio of 195%, **we recommend maintaining the current assumption.**

Active Members

This assumption predicts eligibility for death benefits prior to retirement, rather than the expected lifetime for pension payments. Mortality among active members has a small financial impact upon the system's liabilities. In groups of a smaller size, such as WPF, the mortality rates for active members are often set based on the same assumption as is used for healthy retirees. Given the small probability of death and the relatively low exposure at each age, the results are not credible on their own. **Therefore, we recommend the active member mortality utilize the same basis as**

is used for retirees, the RP-2000 Employee Table with generational mortality improvements as described earlier.

Wichita Fire & Police Retirement System
Experience Study 2004-2008

Probability of Death - Healthy Retirees
Males
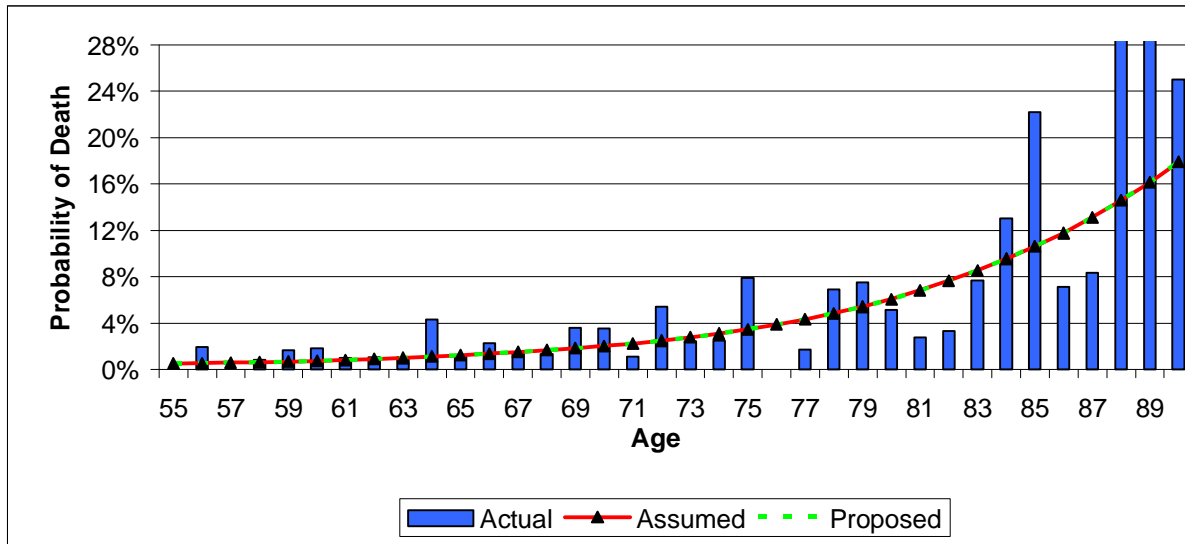
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	70	57	57
Actual/Expected		123%	123%

Section 5:   Retirement

Service retirement measures the change in status from active membership directly to retirement. This assumption does not include the retirement patterns of members who terminated from active membership years prior to their retirement. That experience is studied separately.

Under the Back DROP, a member may elect a benefit based on a retirement date up to 60 months prior to the current date. The monthly benefit is computed based on years of service and final average salary as of the selected retirement date. In addition to the monthly benefit, the DROP account available to the retiring member is the computed benefit multiplied by the number of months of Back DROP plus 5% annual interest, compounded monthly. The years of eligible Back DROP were initially phased-in. Members have been eligible for the full five-year Back DROP since January 1, 2003. Therefore, all experience in this study period occurred under the full five-year Back DROP provision.

The eligibility provisions for retirement and the current assumptions vary by Plan so the experience was measured and evaluated on that basis. Historically, the retirement patterns for Police and Fire have differed significantly. Consequently, different retirement rates are used for each group. Currently, more of the exposure of those eligible to retire is members in Plans A and B, but experience under Plan C was also studied.

Results – Plans A/B

The requirement for service retirement is 20 years of service, regardless of age. The current assumption is service-based with separate rates for Police and Fire commencing at 20 years of service and running through 30 years of service, at which point all members are assumed to retire. The actual and expected number of retirements for each group by year is shown below:

Plans A/B Retirement Experience (2004-2008)

	Police			Fire		
Year	Actual	Expected	A/E	Actual	Expected	A/E
2004	1	8	13%	4	26	15%
2005	4	7	57%	7	21	33%
2006	1	6	17%	2	20	10%
2007	0	9	0%	2	19	11%
2008	2	11	18%	3	27	11%
Total	**8**	**41**	**20%**	**18**	**113**	**16%**

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

26

The actual number of retirements during the period was much lower than expected, although looking at the A/E ratio alone is misleading. Under the retirement assumption, 100% of the members with more than 30 years of service are assumed to retire immediately. In 2004, of the 58 fire members eligible to retire, 20 had more than 30 years of service. Therefore, all 20 would have been included in the expected number of retirements. Only 3 of these members retired so the other 17 carry over as potential retirements in the next year. Again, all of them are expected to retire immediately. None of them retired in 2005 so 100% of 17 would have been assumed to retire in 2006. Because most of the members of this "certain retirement" group did not retire during the study period, they were included in the expected count each year. This distorted the retirement analysis and, as a result, the A/E ratio appears extremely low.

Recommendation – Plans A/B

We continue to observe members retiring later than the current certain retirement age, which is 30 years of service (at which the probability of retirement is 100%). This is likely due to a number of potential factors, but we believe that members are delaying retirement to take advantage of the Back DROP after they have earned their maximum pension of 75% of pay. Although the number of members left in Plans A and B is small, **we recommend lowering the retirement rates and extending them to 35 years of service.** The revised A/E ratio using the proposed assumption is 60%.

Results – Plan C

The requirements for a service retirement are 30 years of service, regardless of age, age 50 with 20 years of service, or age 55 with 10 years of service. Plan C applies to members entering the System after December 31, 1978 and the eligibility requirements for service retirement are more stringent than Plan A and B. As a result, there were few members eligible to retire during this study period. Consequently, the credibility of the observed results is very limited.

To date there has been no experience for members who are eligible to retire under the 30 years of service provision. This should be carefully monitored in future years so the retirement assumption can be appropriately modified to reflect emerging experience. Given the lack of data thus far, some change in retirement rates is to be expected in the future.

The combined experience for calendar years 2004 through 2008 is shown below:

Plan C - Retirement Experience (2004-2008)

| | Actual | Expected | A/E Ratio | |
			Current	Proposed
Police	4	22	18%	36%
Fire	5	19	26%	45%
Total	9	41	22%	42%

The experience in the prior study showed fewer retirements than anticipated, but not so dramatic a difference as in this study. Given the limited credibility of experience during this study period, we aggregated the experience for the prior period to obtain more credible data:

Plan C - Retirement Experience (1999-2008)

	Actual	Expected	A/E Ratio
Police	7	25	28%
Fire	12	25	48%
Total	19	50	38%

Recommendation – Plan C

Although the size of the group is small, we expect the Back DROP will incent Plan C members to work beyond the point at which they can first draw unreduced benefits. Consequently, we recommend moving partially toward the observed experience, but we want to be cautious given the limited data. **We recommend lowering the rates for ages 50-56 and increasing the rates at ages 56-58 for Police and lowering the retirement rates at ages 50-52 and 58-59 for Fire.** The A/E ratio using the proposed assumption is 36% for Police and 45% for Fire.

Back DROP Experience

The Back DROP provision has only been fully phased in (with full five-year Back DROP) since 2003. In the valuation process, we assume that retiring members will elect the better of the Back DROP benefit or the regular service annuity so there is no specific assumption regarding the Back DROP period. The impact of Back DROP on the valuation will be whether members ultimately retire as expected based on the retirement rates, which was studied earlier.

Even though the Back DROP experience isn't used to develop an assumption, it is of interest to various parties. The election of Back DROP for 2001 through 2008 (data from both prior and current study) is summarized below:

Year	Police	Fire	Total
2001	1	1	2
2002	0	1	1
2003	0	8	8
2004	1	4	5
2005	5	7	12
2006	1	2	3
2007	0	4	4
2008	2	6	8
Total	10	33	43

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

28

Of the 35 retirements in 2004 to 2008, 32 elected a Back DROP. The majority of members electing the Back DROP elect the maximum 60-month period. In fact, out of 32 retirees who elected a Back DROP in 2004-08, 21 (or about 65%) elected the maximum (60-month) Back DROP period.

Data is limited due to the size of the group. Consequently it is difficult to make any broad statements or conclusions. However, based on the information available, it appears the Back DROP is more heavily used by the Fire group. This is similar to experience observed in other police and fire retirement systems. The Back DROP is being used and it appears that many members in Plans A and B are working beyond 30 years in order to take advantage of the Back DROP after they reach the maximum benefit of 75% of pay. It is possible the Back DROP will have a different impact on Plan C members. We need to continue to study it as experience unfolds.

Inactive Vested Members

Current inactive vested members who left their contributions with the System are assumed to retire at age 50. Experience during this period indicated that those who retired did so at age 50. **We recommend retaining the current assumption.**

Current active members, who are assumed to leave employment in future years, are assumed to retire at age 50 if they have 20 years of service. Otherwise, the assumed retirement age is 55. **We recommend the current assumption for future inactive vested members be retained.**

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

29

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Police - Plan A/B
Retirement Rates
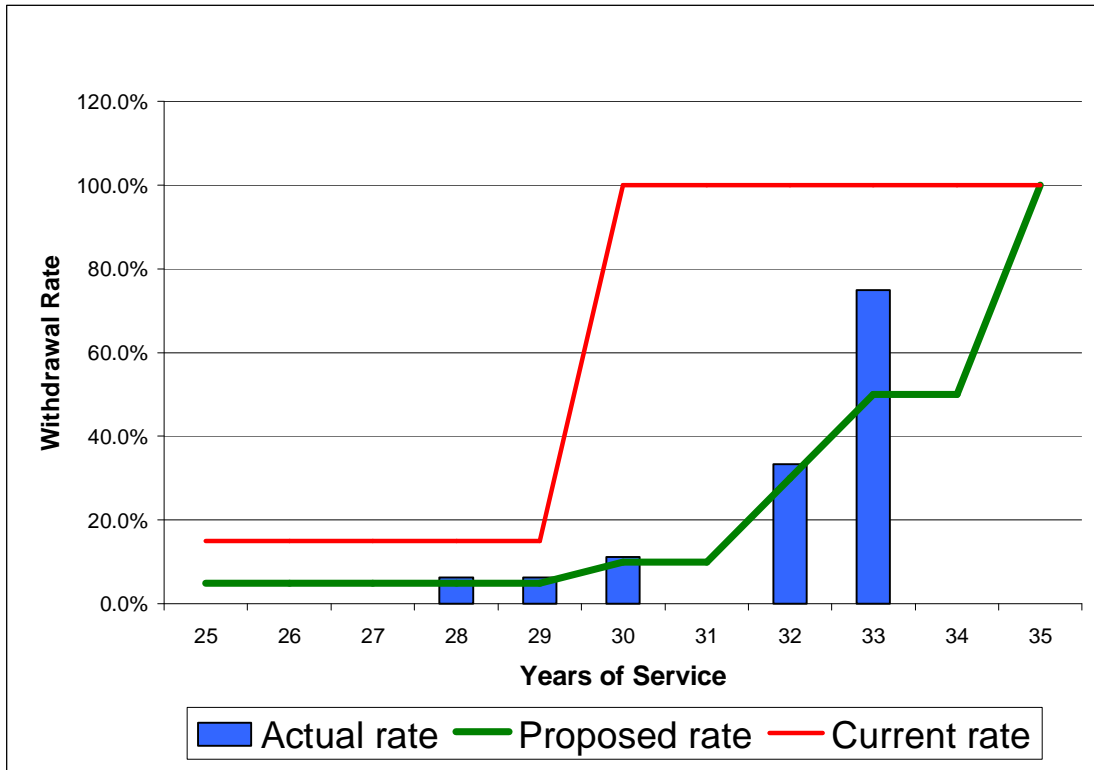
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	8	41	10
Actual/Expected		20%	78%

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Fire - Plan A/B
Retirement Rates
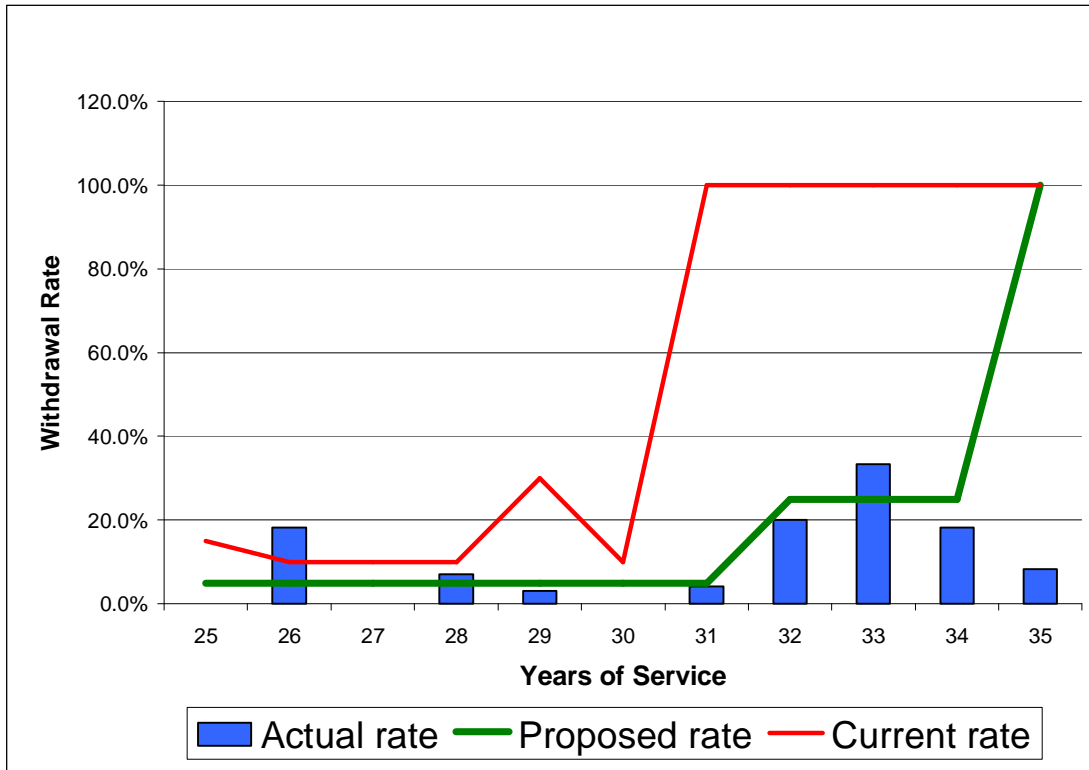
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	18	113	31
Actual/Expected		16%	58%

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Police - Plan C
Retirement Rates
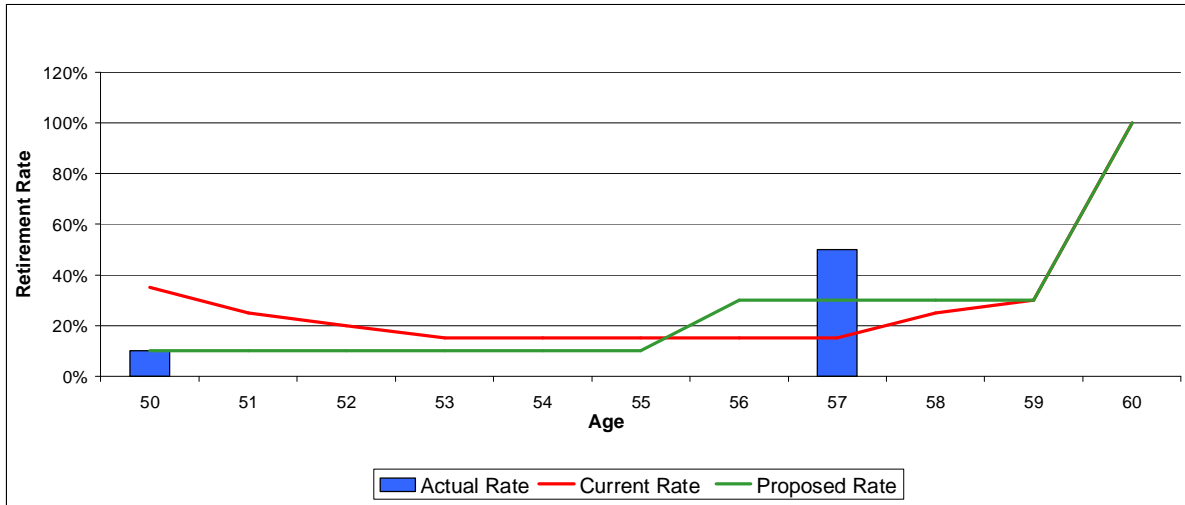
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	4	22	11
Actual/Expected		18%	36%

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Fire - Plan C
Retirement Rates

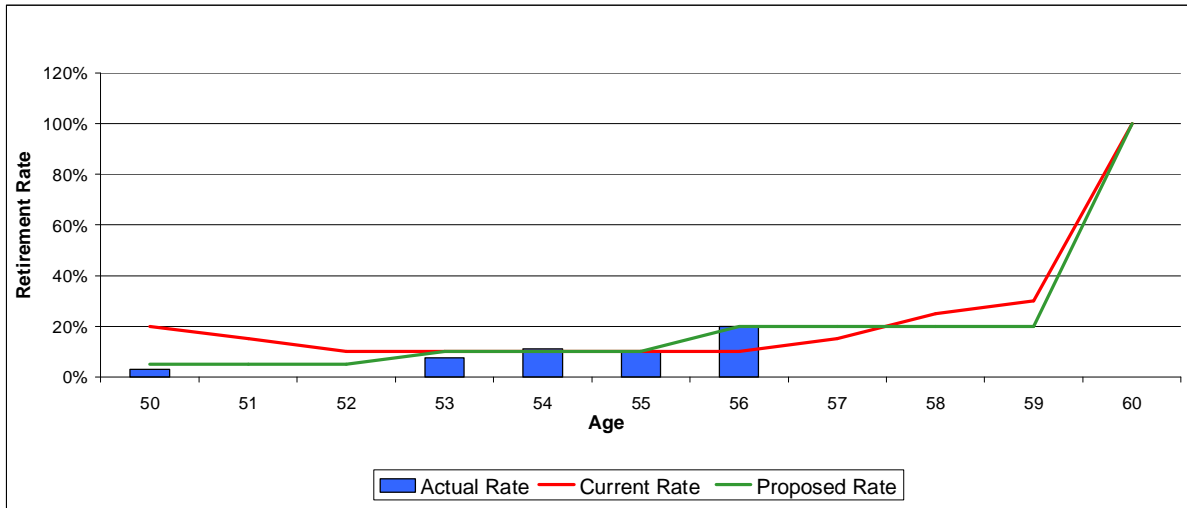|	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	5	19	11
Actual/Expected		26%	45%

Section 6:   Disability

The size of the Retirement System, coupled with the small probability of disablement at most ages, does not permit credible derivation of age related disability rates. Nonetheless, the actual to expected ratio was calculated to provide some indication of actual to expected experience. The table below indicates the number of actual and expected disabilities during the study period and the resulting A/E Ratios. Separate assumptions are used for Police and Fire. In general, ratios below 100% indicate fewer disabilities than expected, which would decrease the actuarial liabilities.

Results

Disabilities	Actual	Expected	A/E Ratio
Police	7	20	35%
Fire	7	14	50%
Total	**14**	**34**	**41%**

Recommendation

The resulting A/E ratios in this study are much lower than those observed in the prior experience study (41% vs 86%). Given the small number of actives, coupled with the small probabilities, some volatility in observed experience is to be expected. Given the lack of credibility in the underlying data (discussed above) and the fact that the current rates are conservative based on observed data, **we recommend the current assumption be maintained.**

34

Section 7:   Termination of Employment (Withdrawal)

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, retirement, or disability. Rates of termination can vary by both age and years of service. In general, rates of termination are highest at younger ages and in the early years of employment. WPF currently uses a set of select and ultimate withdrawal rates. A set of select rates based only on years of service are used for members with less than 5 years of service. A set of age based rates is used for all members with 5 or more years of service.

The number of withdrawals includes all members reported to have terminated employment. Some of these members subsequently receive refunds of contributions; some return to active membership and some leave their contributions with the System until retirement. Other assumptions, discussed elsewhere in this report, address what is assumed to happen to vested members after they terminate.

Different assumptions are used for Police and Fire and consequently experience is measured separately for each group.

Results – Police

The following charts show the actual and expected number of terminations for causes other than death, retirement, or disablement, and the corresponding A/E Ratios.

POLICE

Less Than 5 Years of Service			
Service	**Actual**	**Expected**	**A/E Ratio**
Less than 1	8	8	100%
1	8	10	80%
2	7	9	78%
3	7	6	117%
4	8	5	160%
Total	38	38	100%

5 or More Years of Service			
Age	**Actual**	**Expected**	**A/E Ratio**
25 - 29	4	3	133%
30 - 34	16	8	200%
35 - 39	22	12	183%
40 - 44	16	6	266%
45 - 49	3	4	75%
50 - 54	1	0	N/A
Total	62	33	188%

Recommendation –
Police

Overall, there were more terminations than expected for the Police members, particularly those with more than five years of service. This trend occurred in the last study also. **We recommend moving part of the way toward the observed experience by increasing the termination rates at ages below 45, lowering the rates at ages 45 to 49 and setting the rate to 0% at ages 50 and above.**

Results

The results for Fire members during the study period are shown below:

FIRE

Less Than 5 Years of Service			
Service	**Actual**	**Expected**	**A/E Ratio**
Less than 1	5	7	71%
1	5	6	83%
2	4	4	100%
3	2	2	100%
4	0	1	0%
Total	16	20	75%

5 or More Years of Service			
Age	**Actual**	**Expected**	**A/E Ratio**
25 – 29	0	0	100%
30 - 34	2	2	100%
35 - 39	3	3	100%
40 - 44	4	3	133%
45 - 49	2	2	100%
50 - 54	0	1	0%
Total	11	11	100%

Recommendation – Fire

Overall, the number of actual terminations was close to that expected based on the assumption. There is very low turnover at older ages so we recommend one minor modification. The current assumption includes a probability of termination of employment for all ages up to age 54. **We recommend the rates at ages 44 to 49 be lowered slightly and be set to 0% at ages 50 and above.** Please note that if the member is eligible to retire, the termination of employment assumption does not apply so the changes above age 50 will have a small impact on the costs.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

36

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Police
Withdrawal Rates
Ultimate

	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	62	33	43
Actual/Expected		188%	144%

Wichita Fire & Police Retirement System
Experience Study 2004-2008
Fire
Withdrawal Rates
Ultimate

	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	11	11	9
Actual/Expected		100%	122%

Milliman
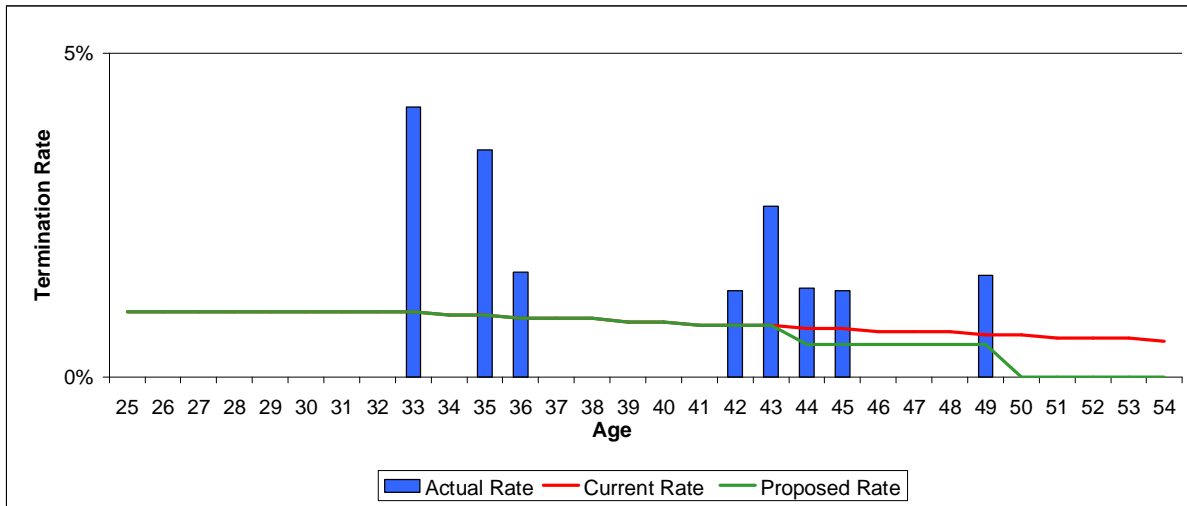
Section 8:   **Probability of Refund Upon Vested Termination**

This section of the report deals with the rates at which members elect a refund of their contributions upon termination of service. It only considers vested members who are not yet eligible for service retirement. Vesting requires 10 years of service. Note that non-vested members are assumed to take a refund at termination.

Results

The table below summarizes the results of our study. The results are consistent with our assumptions in that members have a higher likelihood of electing a refund when terminating with shorter service.

Years of Service	Number Terminating	Number Refunded	Percentage Refund
10-14	21	11	52%
15-19	11	3	27%
20+	8	0	0%

The experience in the prior study showed that 92% of those who terminated with less than 15 years of service elected a refund and 0% of those who terminated with 15 or more years of service elected a refund.

Recommendation

Based on the aggregate results of both the current and prior experience studies, **we recommend the current assumption be retained**.

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Milliman   39

Section 9:   Merit Salary Scale

Estimates of future salaries are based on assumptions for two types of increases:

1.   Increases in each individual's salary due to promotion or longevity (often called merit scale), and

2.   Increases in the general wage level of the membership, which are directly related to price and wage inflation.

Earlier in this report, we recommended that the second of these rates, general wage inflation be set at 4.00% (3.50% price inflation and 0.50% real wage growth).

Although future salary increases are the result of two components, it is difficult if not impossible, to isolate the true salary adjustment due to inflation and productivity.   Therefore, the experience study reviewed total salary increases for the period.

Results

We compared individual salary increases for all members active in any two consecutive periods (e.g. 2004 and 2005, 2005 and 2006, etc.). Based on the current assumption, which is duration based (rates vary with years of service), the actual and expected salary experience over the five year period is shown below:

Year	Actual	Expected
2004	7.7%	6.0%
2005	3.4%	6.0%
2006	5.9%	5.9%
2007	6.5%	5.9%
2008	9.8%	5.8%
Total	6.7%	5.9%

The first set of valuation data reported using the Vi-Tech System was the December 31, 2008 valuation data. Attempts to reconcile the large differences between the 2007 and 2008 salary amounts were made. Various reasons were found for the differences (with the one consistent reason being the 4.0% general wage increase in 2008). In the course of the discussion, it was decided that using actual pay for the calendar year would provide a better estimate than using rates of pay (which had been reported and used in the valuation for years prior to 2008). Although we believe the 2008 salary amounts reported were reasonably accurate, since the 2008 experience is not consistent with the prior years' data, we determined that it should be excluded from the experience study. Once the 2008 data is removed, the overall actual experience for the period is 6.0% and the expected is 5.9%.

Part of the volatility of results observed in this study period is due to the timing of salary increases based on when union contracts were settled. Increases from January 1, 2004 to January 1, 2005 appear high because the union contract was not settled until September/November of 2004. At that time, a retroactive 3% across the board increase was granted for 2004. This increase would first have been reflected in the 12/31/04 valuation data. However, the GPA increase for 2005 would also have been included in the 12/31/04 valuation data. In addition there was also a retroactive 4% raise granted to the Police union during 2007. If the results of the current study period are aggregated with the prior study period to permit the lows and highs to average out, the actual increase for the ten-year period is 6.1% compared to 5.9% expected.

Price inflation during the study period was 2.7% and wage inflation was 4.0% as compared to the assumption of 4.0% and 4.50% respectively. Therefore, we would have expected to see actual wage increases during this period lower than the assumed rates by around 0.50%. Instead, actual increases were slightly above those expected.
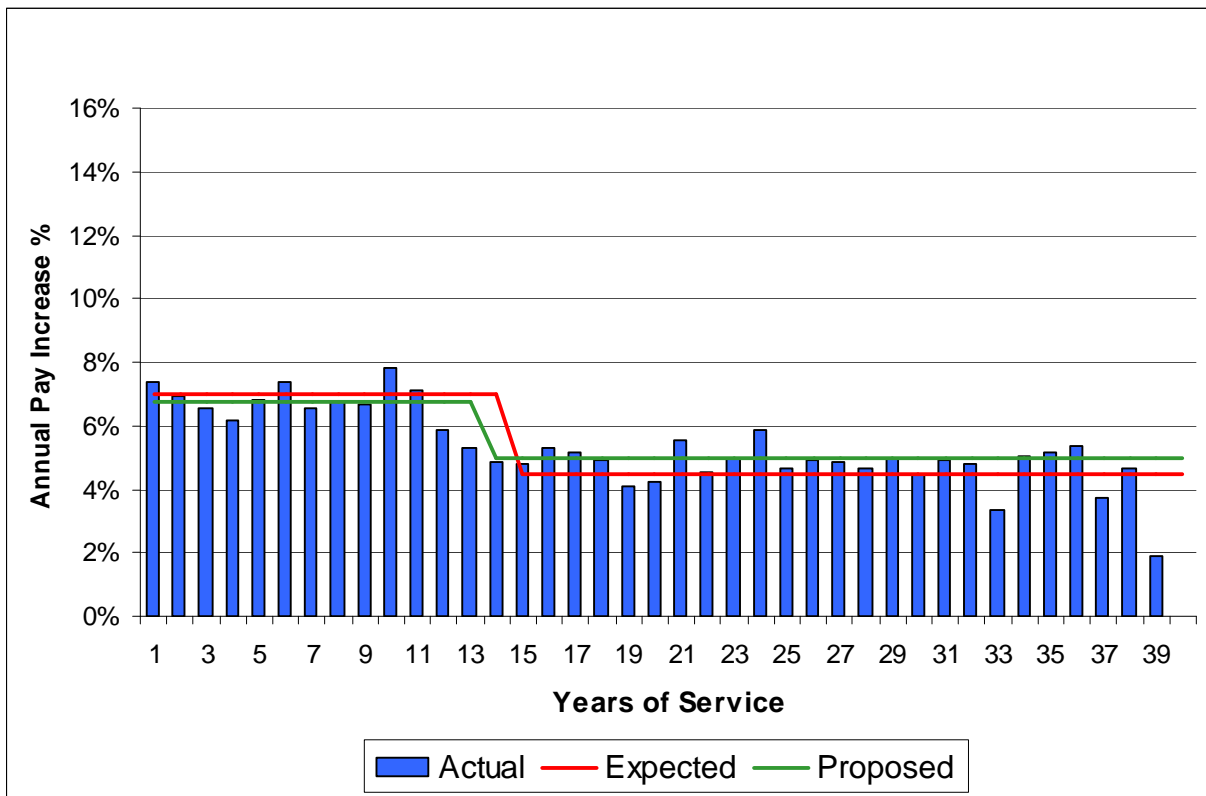
Recommendation

The current merit scale, which is 2.5% for each of the first 15 years of service and 0% thereafter, was developed in the last experience study. The current labor contracts maintain the 15 pay steps so the basic merit salary increase remains appropriate. However, as we analyzed the data for this study period and had discussions with staff, it became apparent that the current salary scale does not provide for the impact of longevity pay or promotions. Longevity pay of $2 per month per year of service is included in employees' pay beginning on their sixth anniversary. The amount increases to $5 per month per year of service at 11 years of service. As we continued to analyze the data, we noted that, although the overall experience during this study period was close to that expected, the experience varied for years 1 to 14 versus years 15+. Actual salary increases were slightly lower than expected for years of service under 15 and slightly above expected for years of service 15 and over. We believe this is largely due to the absence of the longevity component of pay in the salary scale. **We recommend adding a promotional and longevity pay component to the merit scale, resulting in a higher merit scale.** When combined with the general wage growth assumption of 4.0%, the total salary scale is lower at durations 1 to 14 and higher at durations 15 and higher.

Milliman

Total Annual Rates of Increase in Salary
Due to Merit and Longevity
(Including the General Wage Growth Assumption)

Males and Females

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

42

Section 10:   Miscellaneous Assumptions

Sick Leave Service	Upon retirement, each month of accumulated unused sick leave is considered to be a month of service for the purpose of computing benefit amounts. Because the amount of unused sick leave cannot be determined until a member retires, an assumption is used to anticipate the increase in retirement benefits due to this plan provision. Currently, normal retirement benefits are increased by 4% to account for the inclusion of unused sick leave in calculating retirement benefits.

Our review of the increase in retirement benefits due to additional service for unused sick leave indicated an average increase over the study period of 3.4%. This is higher than the experience in the 2004 Experience Study (2.5%), but still below the current assumption. **We recommend the 4% load for sick leave service be retained.**

Marriage Assumption

Actual spousal information is provided for retirees and is used in the valuation. For current active members, whose marital status and spousal information may change before they reach retirement, as assumption is used. The proportion of active members assumed to be married is 80%, with the male assumed to be 3 years older than the female. **The current assumptions are standard assumptions that are used widely by other retirement plans and we recommend they be retained.**

Indexation of Vested Deferred Pensions

The amount of pension for the deferred vested members is indexed with the increase in the National Average Wage, but not to exceed 5.5% per year. The current assumption is an annual increase of 4.5%.

Earlier we reported that the increase in the National Average Wage has varied from 3.8% to 5.3% over different decades of time and we recommended the wage inflation be set to 4.25%. **We recommend the assumption for increases in deferred vested pensions be set to 4.0% to be consistent with the other economic assumptions.**

.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

43

APPENDIX A: Current Actuarial Assumptions

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and has the following characteristics.

(i)   The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.

(ii)   Each annual normal cost is a constant percentage of the member's year-by-year projected covered compensation.

(iii)   Normal costs for Plans A and B (closed plans) were based on Plan C (open plan) assumptions and benefit conditions.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's assumed pensionable compensation rates between the entry age of the member and the assumed exit ages. By applying the Entry Age Normal cost method in the fashion described in (iii), the ultimate normal cost will remain level as a percent of active member payroll (if actuarial assumptions are realized) as Plan A and Plan B members leave active status and are replaced by members entering Plan C.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called actuarial liability. Deducting actuarial assets from the actuarial liability determines the unfunded actuarial liability or (surplus). The unfunded actuarial liability/(surplus) is financed as a level percent of member payroll over an open 20 year period.

Actuarial Assumptions

Retirement System contribution requirements and actuarial present values are calculated by applying experience assumptions to the benefit provisions and membership information of the Retirement System, using the actuarial cost method.

The principal areas of risk which require experience assumptions about future activities of the Retirement System are:

(i)   long-term rate of investment return to be generated by the assets of the System

(ii)   patterns of pay increases to members

(iii)   rates of mortality among members, retirants and beneficiaries

(iv)   rates of withdrawal of active members

(v)   rates of disability among active members

(vi)   the age patterns of actual retirements.

In making a valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives - - a period of time which can be as long as a century.

Actual experience of the Retirement System will not coincide exactly with assumed experience.   Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experiences. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time one or more of the assumptions are modified to reflect experience trends (but not random or temporary year-to-year fluctuations). A complete review of the experience assumptions was completed in 2004 and resulted in the use of updated assumptions for subsequent actuarial valuations.

Investment Return Rate (net of administrative expenses). This assumption is 7.75% a year, compounded annually, and consists of 4.00% long term price inflation and a 3.75% real rate of return over price inflation. This assumption, used to equate the value of payments due at different points in time, was adopted by the Board and was first used for the December 31, 1980 valuation, although the allocation between inflation and real return has changed periodically, most recently in 2004.

Salary Increase Rates. These rates are used to project current pay amounts to those upon which a benefit will be based.

Years of Service	Annual Rate of Salary Increase for Sample Ages			
	Inflation	Productivity	Merit & Longevity	Total
1	4.00%	0.50%	2.5%	7.0%
5	4.00%	0.50%	2.5%	7.0%
10	4.00%	0.50%	2.5%	7.0%
15	4.00%	0.50%	2.5%	7.0%
20	4.00%	0.50%	0.0%	4.5%
25	4.00%	0.50%	0.0%	4.5%
30	4.00%	0.50%	0.0%	4.5%

This assumption was first used for the December 31, 2004 valuation.

Mortality Table. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each pension payment being made after retirement.

Healthy Retirees and Beneficiaries: RP-2000 Healthy Annuitant Table for Males and Females.
Disabled Retirees: RP-2000 Disabled Table for Males and Females.
Active Members: RP-2000 Employee Table for Males and Females.

The RP-2000 Tables are used with generational mortality.

Sample Ages[1]	Present Value of $1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	$138.63	$141.98	32.3	34.6
55	132.05	135.41	27.6	29.7
60	122.80	127.04	23.0	25.1
65	111.13	116.91	18.5	20.7
70	97.31	104.80	14.5	16.7
75	81.63	90.90	10.9	13.0
80	65.36	75.76	7.9	9.8
85	49.97	60.2	5.6	7.1

(1) Ages in 2000

These tables were first used for the December 31, 2004 valuation.

Rates of Retirement. This assumption is used to measure the probability of eligible members retiring from active employment.

Percent Retiring within Year

Plans A & B			Plan C		
Service of Member	Police	Fire	Age of Member	Police	Fire
20	28%	20%	50	35%	20%
21	28	15	51	25	15
22	26	10	52	20	10
23	15	10	53	15	10
24	12	10	54	15	10
25	15	15	55	15	10
26	15	10	56	15	10
27	15	10	57	15	15
28	15	10	58	25	25
29	15	30	59	30	30
30	100	10	60	100	100
31	100	100	Over 60	100	100

The current rates were first used for the December 31, 1999 valuation.

Retirement from Inactive Vested Status: age 50.

Rates of Separation from Active Membership. This assumption measures the probabilities of a member terminating employment. The rates do not apply to members who are eligible to retire.

Sample Ages	Years of Service	Percent Separating Within Year	
		Police	Fire
ALL	0	10.0%	8.0%
	1	8.0	6.0
	2	6.0	4.5
	3	4.0	3.0
	4	3.0	2.0
25	Over 4	3.0	1.0
30		2.4	1.0
35		1.7	1.0
40		1.2	0.9
45		1.0	0.8
50		0.9	0.7
55		0.8	0.6

These rates were first used for the December 31, 1999 valuation.

Forfeiture of Vested Benefits. The assumption is that a percentage of the actuarial present value of vested termination benefits will be forfeited by a withdrawal of accumulated contributions.

Years of Service	% Forfeiting
10 - 14	100
15	0

This table was first used for the December 31, 2004 valuation.

Rates of Disability. This assumption measures the probability of a member becoming disabled.

Sample Ages	Percent Becoming Disabled Within Year	
	Police	Fire
20	0.10%	0.09%
25	0.16	0.14
30	0.33	0.30
35	0.55	0.49
40	0.77	0.68
45	0.98	0.87
50	1.20	1.06
55	1.42	1.14

These rates were first used for the December 31, 1999 valuation.

Rates of Recovery from Disability. Assumed to be zero.

Administrative Expenses. Assumed to be paid from investment earnings.

Active Member Group Size. Assumed to remain constant.

Vested Deferred Pensions. Amounts for Plan C are assumed to increase during the deferral period at 4.5% per year. This assumption was changed with the December 31, 2004 valuation.

Miscellaneous and Technical Assumptions

Marriage Assumption:	80% of participants are assumed to be married for purposes of death benefits. In each case, the male was assumed to be 3 years older than the female.
Service Related Death and Disability:	All active member deaths and 75% of active member disablements are assumed to be service related.
Pay Increase Timing:	Assumed to occur mid-year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at the start of the year in which the decrement is assumed to occur.
Benefit Service:	Service calculated to the nearest month, as of the decrement date, is used to determine the amount of benefit payable.
Other:	Disability and turnover decrements do not operate during retirement eligibility.

Miscellaneous Loading Factors: The calculated normal retirement benefits were increased by 4% to account for the inclusion of unused sick leave in the calculation of Service Credit. This assumption was changed with the December 31, 2004 valuation.

APPENDIX B: Proposed Actuarial Assumptions

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and has the following characteristics.

(i)   The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.

(ii)   Each annual normal cost is a constant percentage of the member's year-by-year projected covered compensation.

(iii)   Normal costs for Plans A and B (closed plans) were based on Plan C (open plan) assumptions and benefit conditions.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's assumed pensionable compensation rates between the entry age of the member and the assumed exit ages. By applying the Entry Age Normal cost method in the fashion described in (iii), the ultimate normal cost will remain level as a percent of active member payroll (if actuarial assumptions are realized) as Plan A and Plan B members leave active status and are replaced by members entering Plan C.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called actuarial liability. Deducting actuarial assets from the actuarial liability determines the unfunded actuarial liability or (surplus). The unfunded actuarial liability/(surplus) is financed as a level percent of member payroll over an open 20 year period.

Actuarial Assumptions

Retirement System contribution requirements and actuarial present values are calculated by applying experience assumptions to the benefit provisions and membership information of the Retirement System, using the actuarial cost method.

The principal areas of risk which require experience assumptions about future activities of the Retirement System are:

(i)   long-term rate of investment return to be generated by the assets of the System

(ii)   patterns of pay increases to members

(iii)   rates of mortality among members, retirants and beneficiaries

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Milliman   **49**

(iv)   rates of withdrawal of active members

(v)   rates of disability among active members

(vi)   the age patterns of actual retirements.

In making a valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives - - a period of time which can be as long as a century.

Actual experience of the Retirement System will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experiences. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time one or more of the assumptions are modified to reflect experience trends (but not random or temporary year-to-year fluctuations). A complete review of the experience assumptions was completed in 2004 and resulted in the use of updated assumptions for subsequent actuarial valuations.

Investment Return Rate (net of administrative expenses). This assumption is 7.75% a year, compounded annually, and consists of 3.50% long term price inflation and a 4.25% real rate of return over price inflation. This assumption, used to equate the value of payments due at different points in time, was adopted by the Board and was first used for the December 31, 1980 valuation, although the allocation between inflation and real return has changed periodically, most recently in 2008.

Salary Increase Rates. These rates are used to project current pay amounts to those upon which a benefit will be based.

Years of Service	Annual Rate of Salary Increase for Sample Ages			
	Inflation	Productivity	Merit & Longevity	Total
1	3.50%	0.50%	2.75%	6.75%
5	3.50%	0.50%	2.75%	6.75%
10	3.50%	0.50%	2.75%	6.75%
15	3.50%	0.50%	2.75%	6.75%
20	3.50%	0.50%	1.0%	5.00%
25	3.50%	0.50%	1.0%	5.00%
30	3.50%	0.50%	1.0%	5.00%

This assumption will first be used for the December 31, 2009 valuation.

Mortality Table. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each pension payment being made after retirement.

Healthy Retirees and Beneficiaries: RP-2000 Healthy Annuitant Table for Males and Females.
Disabled Retirees: RP-2000 Disabled Table for Males and Females.
Active Members: RP-2000 Employee Table for Males and Females.

The RP-2000 Tables are used with generational mortality.

Sample Ages[1]	Present Value of $1 Monthly for Life		Future Life Expectancy (Years)	
	Men	**Women**	**Men**	**Women**
50	$138.63	$141.98	32.3	34.6
55	132.05	135.41	27.6	29.7
60	122.80	127.04	23.0	25.1
65	111.13	116.91	18.5	20.7
70	97.31	104.80	14.5	16.7
75	81.63	90.90	10.9	13.0
80	65.36	75.76	7.9	9.8
85	49.97	60.2	5.6	7.1

(1) Ages in 2000

These tables were first used for the December 31, 2004 valuation.

Rates of Retirement. This assumption is used to measure the probability of eligible members retiring from active employment.

Percent Retiring within Year

Plans A & B			Plan C		
Service of Member	Police	Fire	Age of Member	Police	Fire
28 or less	5%	5%	50	10%	5%
29	5	5	51	10	5
30	10	5	52	10	5
31	10	5	53	10	10
32	30	25	54	10	10
33	50	25	55	10	10
34	50	25	56	30	20
35	100	100	57	30	20
Over 35	100	100	58	30	20
			59	30	20
			60	100	100
			Over 60	100	100

These rates will first be used for the December 31, 2009 valuation.

Rates of Separation from Active Membership. This assumption measures the probabilities of a member terminating employment. The rates do not apply to members who are eligible to retire.

Sample Ages	Years of Service	Percent Separating Within Year	
		Police	Fire
ALL	0	10.00%	8.00%
	1	8.00	6.00
	2	6.00	4.50
	3	4.00	3.00
	4	3.00	2.00
25	Over 4	3.00	1.00
30		3.00	1.00
35		2.50	0.95
40		1.90	0.85
45		0.70	0.50
50		0.0	0.0
55		0.0	0.0

These rates will first be used for the December 31, 2009 valuation.

Forfeiture of Vested Benefits. The assumption is that a percentage of the actuarial present value of vested termination benefits will be forfeited by a withdrawal of accumulated contributions.

Years of Service	% Forfeiting
10 - 14	100
15	0

This table was first used for the December 31, 2004 valuation.

Rates of Disability. This assumption measures the probability of a member becoming disabled.

Sample Ages	Percent Becoming Disabled Within Year	
	Police	Fire
20	0.10%	0.09%
25	0.16	0.14
30	0.33	0.30
35	0.55	0.49
40	0.77	0.68
45	0.98	0.87
50	1.20	1.06
55	1.42	1.14

These rates were first used for the December 31, 1999 valuation.

Rates of Recovery from Disability. Assumed to be zero.

Administrative Expenses. Assumed to be paid from investment earnings.

Active Member Group Size. Assumed to remain constant.

Vested Deferred Pensions. Amounts for Plan C are assumed to increase during the deferral period at 4.0% per year. This assumption will be changed with the December 31, 2009 valuation.

<u>**Miscellaneous and Technical Assumptions**</u>

Marriage Assumption:	80% of participants are assumed to be married for purposes of death benefits. In each case, the male was assumed to be 3 years older than the female.
Service Related Death and Disability:	All active member deaths and 75% of active member disablements are assumed to be service related.
Pay Increase Timing:	Assumed to occur mid-year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at the start of the year in which the decrement is assumed to occur.
Benefit Service:	Service calculated to the nearest month, as of the decrement date, is used to determine the amount of benefit payable.
Other:	Disability and turnover decrements do not operate during retirement eligibility.

Miscellaneous Loading Factors: The calculated normal retirement benefits were increased by 4% to account for the inclusion of unused sick leave in the calculation of Service Credit. This assumption was changed with the December 31, 2004 valuation.

DEFINITION OF TERMS

Actuarial Accrued Liability

The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability."

Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Accrued Service

Service credited under the system that was rendered before the date of the actuarial valuation.

Actuarial Equivalent

A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Experience Gain(Loss)

The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

Amortization

Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

54

Normal Cost

The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.

Unfunded Actuarial Accrued Liability

The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as "unfunded accrued liability" or "unfunded liability".

Most retirement systems have unfunded actuarial accrued liability. They arise anytime new benefits are added and anytime an actuarial loss is realized.

The existence of unfunded actuarial accrued liability is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liability and make payments to finance it. Also of importance are trends in the amount or duration of payment.

Milliman

This work product was prepared solely for Wichita Police and Fire Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

55